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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,111	03/29/2004	J. Joseph Armstrong	KLAC0080	1534
30438	7590	02/21/2007		
SMYRSKI LAW GROUP, A PROFESSIONAL CORPORATION			EXAMINER	
3310 AIRPORT AVENUE, SW			FINEMAN, LEE A	
SANTA MONICA, CA 90405				
			ART UNIT	PAPER NUMBER
			2872	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/812,111

Applicant(s)

ARMSTRONG ET AL.

Examiner

Lee Fineman

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 9, 11, 13, 14, 17-19, 64 and 67-98 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 67-98 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 8, 13, 14, 17-19 and 64 is/are rejected.
- 7) ☒ Claim(s) 3, 9 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/20/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection.. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 28 November 2006 has been entered, in which claims 1, 4, 11, 67, 69, 70, 75, 77 and 78 were amended. Claims 1-6, 8-9, 11, 13-14, 17-19, 64 and 67-98 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 2, 4-6, 8, 13-14, 17-19 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shafer et al., US 6,483,638 B1, (Henceforth Shafer '638) in view of Yonekubo or Suwa.

Regarding claims 1, 4, 5, 8, 19 and 64, Shafer '638 disclose an objective (fig. 4) for use in inspecting a specimen (120), said objective employed with light energy having a wavelength in the range of approximately 190 to 1000 nanometers (column 5, lines 51-53), comprising: a focusing lens group (129) comprising at least one focusing lens (fig. 4) configured to receive said

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light energy and form focused light energy; a plurality of field lenses (127) oriented to receive focused light energy from said focusing lens group (fig. 4) and provide intermediate light energy; and a Mangin mirror arrangement (122) positioned to receive the intermediate light energy from the plurality of field lenses (fig. 4) through a back side of the Mangin mirror arrangement (fig. 4) and form controlled light energy transmitted from a front side of the Mangin mirror arrangement (fig. 4), said Mangin mirror arrangement comprising at least three axially distributed elements (123, 124, 125) comprising two elements (123 and 124) having reflective surfaces (fig. 4); wherein said focusing lens and field lens form an intermediate image between said field lens and said Mangin mirror arrangement (fig 4); and configured to have a numerical aperture (NA) in excess of approximately 0.9 (column 3, line 7). Shafer '638 disclose the claimed invention except for an immersion liquid between the Mangin mirror and the specimen, wherein the third element of the Mangin mirror arrangement is in contact with the immersion liquid. Immersion liquids, including water and oil, are well known in the microscope/lithography art to obtain better imaging performance. For example, Yonekubo or Suwa teach using immersion liquids, including water and oil (which has a refractive index greater than water), to obtain better imaging performance (see Yonekubo, columns 1-2 and Suwa, column 3, lines 24-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a immersion liquid like those taught in Yonekubo or Suwa with the objective of Shafer '638 to provide better imaging performance by refractive index matching to limit the amount of reflection at the interface of two materials with different refractive indices and thus maximize the intensity of the light passing through the optical system to provide an image that is brighter to the observer.

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Therefore, the immersion liquid would be between and in contact with the third element (123) of the Mangin mirror and the specimen (120).

Regarding claims 2, 6, 13 and 14, Shafer '638 in view of Yonekubo or Suwa as disclosed above further disclose that the system is very flexible with an adjustable NA and an adjustable bandwidth (see Shafer '638 column 7, lines 53-58) but does not specifically disclose the objective configured to have a NA in excess of approximately 1.1, providing a relative bandwidth in excess of 0.5, providing a bandwidth of less than approximately 0.9 with a center wavelength of 633 nm, and providing a bandwidth of less than approximately 0.7 with a center wavelength of 196 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the NA and bandwidth to any value including the claimed values, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering an optimum value or working ranges involves only routine skill in the art. One would have been motivated to adjust the NA and bandwidth for the purpose of obtaining a desired optical resolution and depth of focus (see Shafer '638 column 7, lines 53-58). *In re Aller*, 220 F.2d 454, 456 105 USPQ 233, 235.

Regarding claim 8, Shafer '638 in view of Yonekubo or Suwa as set forth above is silent to the diameter of each lens including wherein each lens has a diameter of less than approximately 25 millimeters. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the diameters of each lens be a diameter of less than approximately 25 millimeters, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering an optimum value or working ranges involves only routine skill in the art. One would have been motivated to adjust the NA and bandwidth for the

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purpose of providing lenses that fit in standard microscope lens holders. *In re Aller*, 220 F.2d 454, 456 105 USPQ 233, 235.

Regarding claims 17 and 18, Shafer '638 in view of Yonekubo or Suwa as disclosed above further disclose said objective having a working distance used with a microscope (fig. 8) having a flange (80) but is silent as to the location of the flange being approximately 45 millimeters from the specimen or at least approximately 100 millimeters from the specimen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the flange be approximately 45 millimeters from the specimen or at least approximately 100 millimeters from the specimen, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. One would have been motivated to have the flange be approximately 45 millimeters from the specimen or at least approximately 100 millimeters from the specimen for the purpose of having an appropriate working area for interacting with/changing the specimen. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

4. Claims 67-98 are allowed.
5. Claims 3, 9 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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6. The following is a statement of reasons for allowance or the indication of allowable subject matter:

Claims 3 and 67-98 are allowable or have allowable subject matter over the prior art for at least the reason that the prior art fails to teach and/or suggest "wherein the Mangin mirror arrangement comprises first and second lens/mirror elements each having curved concave surfaces and second surface reflection and a third lens element" as set forth in the claimed combination.

Shafer '638 as set forth above has a Mangin Mirror arrangement with three elements but they do not comprise first and second lens/mirror elements each having curved concave surfaces and second surface reflection and a third lens element as claimed.

Claims 9 and 11 have allowable subject matter over the prior art for at least the reason that the prior art fails to teach and/or suggest "wherein all lenses are constructed of a single glass material" as set forth in the claimed combination.

Shafer '638 as set forth above teaches away from all lenses being constructed of a single glass material in column 6, lines 54-58 because the field lens must be a different material.

Response to Arguments

7. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

8. It is noted by the Examiner that the double patenting rejections made in the previous Office Action have been withdrawn due to amendment of the claims by the Applicant.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 5:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LAF

14 February 2007


MATKA ROBINSON
PATENT EXAMINER